



State of Utah  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt  
Governor  
Robert L. Morgan  
Executive Director  
Lowell P. Braxton  
Division Director

1594 West North Temple, Suite 1210  
PO Box 145801  
Salt Lake City, Utah 84114-5801  
(801) 538-5340 telephone  
(801) 359-3940 fax  
(801) 538-7223 TTY  
www.nr.utah.gov

August 28, 2002

CERTIFIED RETURN RECEIPT  
7099 3400 0016 8895 5033

William R. Wilson  
Basin Perlite Company  
2160 Republic Plaza  
370 17<sup>th</sup> Street No. 2160  
Denver, Colorado 80202-1370

Re: Mine Waste Disposal Concerns, Basin Perlite Company, Pearl Queen Mine, M/001/027, Beaver, County, Utah

Dear Mr. Wilson:

On July 22, 2002, Doug Jensen, Paul Baker and I visited the Pearl Queen Mine while in the area performing other mine site inspections. As a result of our inspection, we have some concerns about how mine wastes is being disposed of at the mine. Of particular concern is the very fine processing waste material (bag house fines?) being dumped into the waste rock disposal area. As discussed in the enclosed inspection report, there are conflicting statements in the mine plan about whether this material will be used for reclamation or placed in the waste rock disposal area. Because of problems we found with the disposal method currently being used for this material, the plan needs to be amended and the disposal method changed.

We noted that the fine material being placed into the waste rock disposal area appears to be migrating off site. We also have misgivings about using this waste material mixed with soil or overburden for reclamation. Within 30 days of your receipt of this letter, please submit an amendment to your plan addressing the following issues:

1. The mine plan needs to be clarified to indicate that no more processing waste will be disposed of in the waste rock disposal area (i.e., in the adjacent drainage channel).
2. Provide evidence that mixing the waste material with soil is not detrimental for plant growth, or show a waste disposal plan that does not rely on using this material as part of the growth medium.
3. Waste material that may have eroded beyond the permit boundary needs to be cleaned up, and residual material on the slope needs to be prevented from leaving the permit area.

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This may or may not require an amendment. If you plan to build a containment structure, such as a sediment pond, an amendment would be required.

Please provide an amendment within the time frame specified in this letter demonstrating compliance with Administrative Rule R647-4-107.2. This regulation requires the operator to take appropriate measures to avoid or minimize environmental damage if natural channels are to be affected by the mining operation.

Thank you for your cooperation and prompt attention to this matter. If you have any questions about this letter or these issues, please call me at (801) 538-5286, Paul Baker at 538-5261, or Doug Jensen at 538-5382.

Sincerely,



D. Wayne Hedberg  
Permit Supervisor  
Minerals Regulatory Program

jb  
Enclosure: Inspection Report & permit revision form  
cc: Mary Ann Wright, OGM w/encl  
Ed Ginouves, BLM w/encl  
John Blake, SITLA w/encl  
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# State of Utah

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Michael O. Leavitt  
Governor  
Kathleen Clarke  
Executive Director  
Lowell P. Braxton  
Division Director

1594 West North Temple, Suite 1210  
PO Box 145801  
Salt Lake City, Utah 84114-5801  
801-538-5340  
801-359-3940 (Fax)  
801-538-7223 (TDD)

July 30, 2002

TO: Minerals File

FROM: Paul Baker, Senior Reclamation Biologist 

RE: Site Inspection, Basin Perlite Company, Pearl Queen Mine, M/001/027, Beaver County, Utah

Date of Inspection: July 22, 2002  
Time of Inspection: about 4:05 to 4:15 PM  
Conditions: Mostly cloudy, 80's  
Participants: Wayne Hedberg, Doug Jensen, and Paul Baker, DOGM

#### Purpose of Inspection:

The Division received information from the Bureau of Land Management that there might be a problem with how baghouse dust from the processing plant was being disposed of at the mine.

#### Observations:

No mine personnel were present during the inspection, and the only equipment on site was a front end loader. There was a product stockpile near the south end of the mine.



**Photo 1. Slope northwest of the mine.**

The condition of the slope below the mine is shown in Photos 1, 2, 4, and 5. (Note: The date shown on the photos is incorrect. It should be the date of the inspection, 7/22/2002.) Photo 1 is an overview

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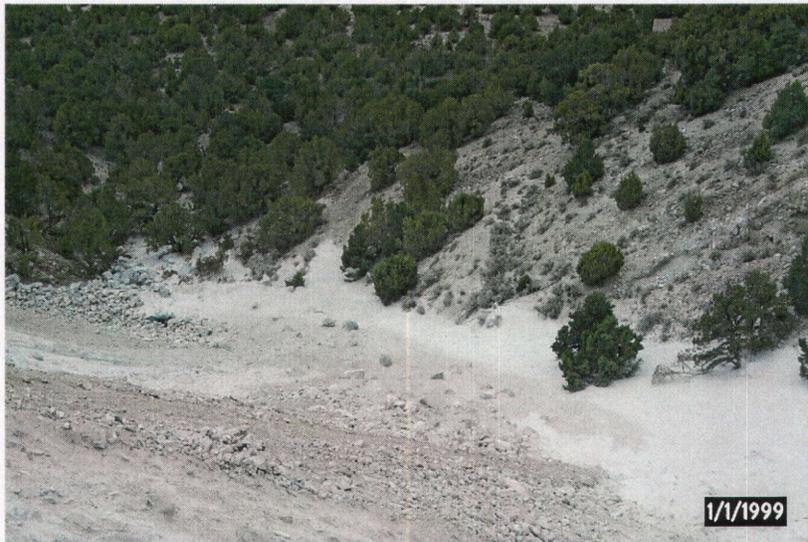
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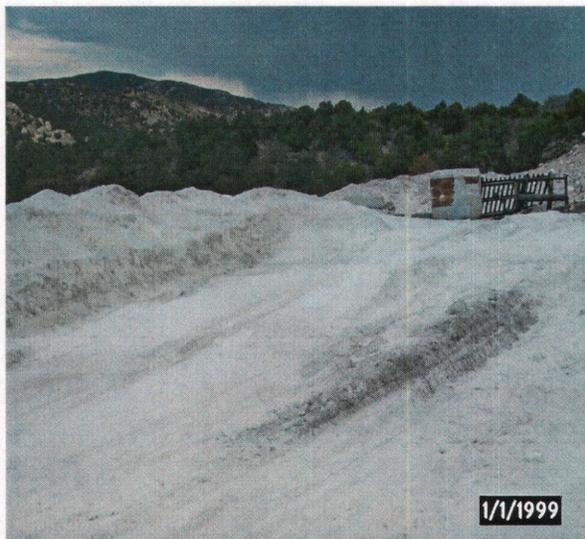
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of the slope below the mine, and Photo 2 is a view looking down the slope. The white material is very fine and powdery, and it appears to be the baghouse dust about which the Bureau of Land Management expressed concern. Based on the amount of material at the top of the slope and the tracks in this material (Photo 3), it appears it is being brought to the mine and dumped near the top edge of the slope then pushed over the edge using a front end loader.

The material is unstable and erodes readily. The slightest disturbance at the top of the slope causes a debris flow extending to the bottom of the hill. Attempted photos of this phenomenon did not turn out well, but there are signs of water erosion shown in Photo 4.



**Photo 2. View looking down the slope.**



**Photo 3. Dust at the top of the slope shown in Photo 1.**



**Photo 4. Signs of erosion in the fine material on the slope below the mine.**

Along the access road leading to the mine, we found markers showing the limits of the mine permit area. Farther down the road, we were still able to see this dust material in the drainage indicating it is being carried off site (Photo 5).



**Photo 5. Dust in the drainage below the permit area markers. Note the light area between the trees near the center of the photo.**

There is a gate along the road at the bottom of the hill before climbing to the mine site, and there was a sign on the gate. The gate was open in such a way that we could not read the sign from our vehicle.

**Discussion, Conclusions and Recommendations:**

The mine plan says, "There is a gate and warning signs are posted on the main haul road into the Pearl Queen pit (current mine area)." Although there was a gate, it should be locked when no one is at the mine, and the warning sign should be displayed so it can be seen from the road.

Various parts of the plan have comments about waste being returned to the mine. Two of the commitments are:

Residual process plant waste (perlite fines) will be used in the final reclamation of the mine site. The stockpiled soil-rubble/perlite will be uniformly placed over the recontoured areas of the mine, then seeded with an approved seed mixture.

Reject or unsold perlite ore is hauled back and deposited in the mined out portion of the pit. Waste storage will be in the current mined out area . . .

A response letter received June 25, 2001, says, "Residual plant waste . . . has been and continues to be incorporated in soil stockpiles and reclaimed areas to help achieve top soil stability and erosion control."

The plan submitted July 2, 2001, seems to conflict with these statements. It says:

Waste rock and material from the mill and expander plant will be disposed of in the pit and the current waste dump at the Pearl Queen Pit.

In other areas of the plan, the operator commits to keeping waste rock in the "current" disturbed area. After looking through the history of permitting done in 2001, including notes from a meeting held with the operator's personnel, it is apparent that the operator was to have limited waste rock disposal to the area permitted at that time and not to expand this area until reclamation. At the time of reclamation, the plan is to put some large rocks at the base of the waste rock disposal area then grade this slope to 2.5h:1v. The disturbance size would then need to be enlarged to accommodate this slope.

Because of the conflicts in the plan, a notice of noncompliance is probably not justified except, perhaps, from a performance standard viewpoint: the operator may be following one of the commitments in the plan, but fines have been eroded off site.

It would be very difficult at this point for the operator to try to clean up the fines on the slope. For this reason, the operator should build a sediment control structure (sediment pond) to catch the fines as they go down the drainage. Figure 8 in the mine plan submitted in 1996 shows a sediment dam in the drainage below the mine, but I have not been able to find a map showing a pond or a commitment to build one in the newer versions of the mine plan. We could not see a pond in the drainage, but even if it is there, it is not effective in controlling sediment from the mine. Because of the difficulty that would be involved with cleaning the fines off the slope below the mine, a sediment pond is needed. It should be located so it can be cleaned out easily.

In addition to building or enlarging a sediment pond, the operator needs to take the following actions:

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1. Stop putting fines or any other waste in the waste rock disposal area.
2. Evaluate with the Division the practicality of cleaning fines from the drainage below the mine.
3. Clarify the commitments in the plan concerning disposal of processing waste.

Aside from any compliance or water quality issues, I am concerned whether mixing waste from the plant with topsoil is wise. Perlite used in potting soils is much different from the fines being returned to the mine. If there are places where the operator has done contemporaneous reclamation using soil mixed with these fines, revegetation success should be monitored in these areas to determine whether there appear to be any detrimental effects from using the fines. I do not believe adequate permanent vegetation can be established in the fines if they are used directly as a topsoil substitute without being blended.

There is a letter in the file dated April 26, 2001, where the operator says they use no water in the mine and reclamation operations. The Division should check with the operator to see how dust is controlled without using water. The Division may want to coordinate this with the Division of Air Quality.

jb

cc: Bill Wilson  
Ed Ginouves (BLM)  
John Blake (SITLA)

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